

What is claimed is:

1. A method for controlling a fuel cell system in which hydrogen-containing reformer gas is produced in a reformer unit by selectively separating the reformer gas from a gas mixture using a diaphragm module; in normal operation of the fuel cell system having a diaphragm, the gas mixture is kept under a higher pressure than the separated reformer gas, the reformer gas being supplied to the anode side of a fuel cell module made up of at least one fuel cell,
and in which an oxidation agent is supplied to the cathode side of the fuel cell module, the fluids on the anode side and the cathode side being separated in normal operation by a separation diaphragm and held under predefined pressures,
wherein in the event of malfunction, i.e., bursting of the diaphragm (14) of the reformer unit (1), the differential pressure between the side of the reformer unit (1) diaphragm (14) facing the anode side (18) and the cathode side (19) of the fuel cell module (2) is held below a predefined value.
2. The method as recited in Claim 1,
wherein the differential pressure is essentially held below 500 mbar.
3. A system for executing the method as recited in Claim 1,
comprising a reformer unit for producing a hydrogen-containing reformer gas using a diaphragm module which contains a diaphragm which separates a high-pressure area from a low-pressure area,
including a fuel cell module having at least one fuel cell which is composed of an anode side and a cathode side which are separated from one another by a separation diaphragm, the anode side being connected to the low-pressure area of the diaphragm module, and the cathode side being connected to a device for supplying an oxidation agent,
wherein the volume for the circulation of fluids on the high-pressure side (15) is substantially smaller than the volume for the circulation of fluids on the low-pressure side (16).

4. The system as recited in Claim 3,
wherein the volume for the circulation of fluids in the fuel cell module (2) is at least six times that of the volume on the high-pressure side (15).
5. A system for executing the method as recited in Claim 1,
comprising a reformer unit for producing a hydrogen-containing reformer gas using a diaphragm module which contains a diaphragm which separates a high-pressure area from a low-pressure area,
including a fuel cell module having at least one fuel cell which is composed of an anode side and a cathode side which are separated from one another by a separation diaphragm, the anode side being connected to the low-pressure area of the diaphragm module, and the cathode side being connected to a device for supplying an oxidation agent,
wherein a pressure relief valve (29) is situated in the connection (21) between the low-pressure area (16) of the diaphragm module (4) and the anode side (18) of the at least one fuel cell (2).
6. The system as recited in Claim 5,
wherein the pressure relief valve (29) is pressure-controlled by a pressure sensor (28).
7. The system as recited in Claim 5,
wherein the pressure relief valve (29) is controlled by a sensor (28) whose signal represents the carbon monoxide and/or carbon dioxide content on the low-pressure side of the diaphragm (14) of the diaphragm module (4).
8. The system as recited in Claim 5,
wherein a flow resistance (22) is additionally situated in the connection (21).
9. The system as recited in Claim 5,
wherein a shut-off valve (37), which can be shut off in the event of rupture of the diaphragm (14) in the diaphragm module (4), is additionally situated in the connection

(21).

10. A system for executing the method as recited in Claim 1,
comprising a reformer unit for producing a hydrogen-containing reformer gas using a diaphragm module which contains a diaphragm which separates a high-pressure area from a low-pressure area,
including a fuel cell module having at least one fuel cell which is composed of an anode side and a cathode side which are separated from one another by a separation diaphragm, the anode side being connected to the low-pressure area of the diaphragm module, and the cathode side being connected to a device for supplying an oxidation agent,
wherein a bursting disk (36) is situated in the connection (21) between the low-pressure area of the diaphragm module (4) and the anode side (18) of the at least one fuel cell (2).